

Notice of Allowability

Application No.

10/723,420

Applicant(s)

BROWN ET AL.

Examiner

Leslie A. Royds

Art Unit

1614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments and remarks filed 30 August 2007.
2. ☒ The allowed claim(s) is/are 77-79, 84, 89-91, 98-103.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

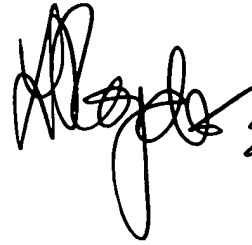
Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 19 November 2007
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other See Continuation Sheet.

Leslie A. Royds
Patent Examiner
Art Unit 1614

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 30 August 2007; 19 September 2007; 03 October 2007 (three pages total)

Continuation of Attachment(s) 9. Other: Drawings filed 26 November 2003 are accepted.

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EXAMINER'S AMENDMENT

An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to Applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

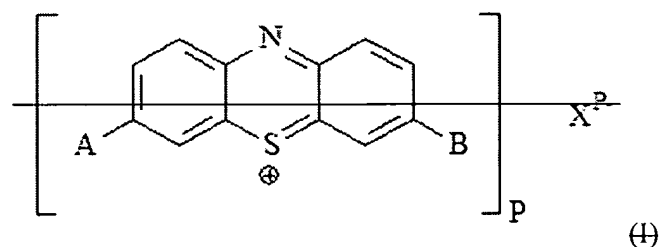
Authorization for this Examiner's Amendment was given in a telephone interview with Mary Wilson on Monday, November 19, 2007.

The application has been amended as follows:

In the Claims:

Please replace Claim 77 with the following text:

---Claim 77 (Currently Amended): A method of treatment of a fungal infection due to *Candida albicans*, Gram negative bacterial infection due to *E.coli* or *P. aeruginosa*, or Gram positive bacterial infection due to *S. aureus* or methicillin resistant *S. aureus*, the method comprising administering to a subject having an area infected with *Candida albicans*, *E. coli*, *P. aeruginosa*, *S. aureus* or methicillin resistant *S. aureus*, by systemic administration or by local application to said infected area, a therapeutically effective amount of a compound of Formula (I):



wherein said compound is selected from the group consisting of:

[3,7-(tetra-n-propylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-n-butylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},

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$[3-(N,N\text{-di-}n\text{-butylamino})-7-(N,N\text{-di-}n\text{-propylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(N,N\text{-di-}n\text{-hexylamino})-7-(N,N\text{-di-}n\text{-propylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(2\text{-ethylpiperidino})-7-(N,N\text{-di-}n\text{-pentylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(2\text{-methylpyrrolidino})-7-(N,N\text{-di-}n\text{-pentylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3,7-(N,N\text{-tetra- iso-butylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(N,N\text{-di-}n\text{-butylamino})-7-(N,N\text{-di-iso-pentylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(N,N\text{-diethylamino})-7-(N,N\text{-di-}n\text{-propylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(N,N\text{-di-}n\text{-pentylamino})-7-(N,N\text{-di-}n\text{-propylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$,
 $[3-(N,N\text{-di-}n\text{-butylamino})-7-(N,N\text{-di-}n\text{-pentylamino})\text{-phenothiazin-5-ium}]_P \text{ } X^{P-}$, and
 $[3-((N\text{-ethyl-}N\text{-cyclohexyl) amino})-7((N\text{-ethyl-}N\text{-cyclohexyl) amino-phenothiazin-5-ium}]_P \text{ } X^{P-}$,

wherein X^{P-} is a counteranion and P is 1, 2 or 3,

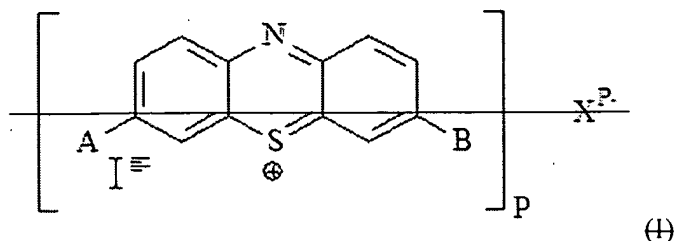
and exposing said infected area to light to render active said compound and

thereby effecting said treatment of said fungal infection, said Gram negative bacterial infection or said

Gram positive bacterial infection.---

Please replace Claim 79 with the following text:

---Claim 79 (Currently Amended): A method of killing or deactivating any *Candida albicans*, *E. coli*, *P. aeruginosa*, *S. aureus* or methicillin resistant *S. aureus* present on a surface or in a fluid comprising: contacting or applying a compound of the Formula (I):



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~~wherein said compound~~ is selected from the group consisting of:

- [3,7-(tetra-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-n-butylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-hexylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(2-ethylpiperidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(2-methylpyrrolidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(N,N-tetra- iso-butylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-diethylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-pentylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-}, and
- [3-((N-ethyl-N-cyclohexyl) amino)-7((-N-ethyl)-N-cyclohexyl) amino-phenothiazin-5-ium]_P X^{P-},

wherein X^{P-} is a counteranion and P is 1, 2 or 3,

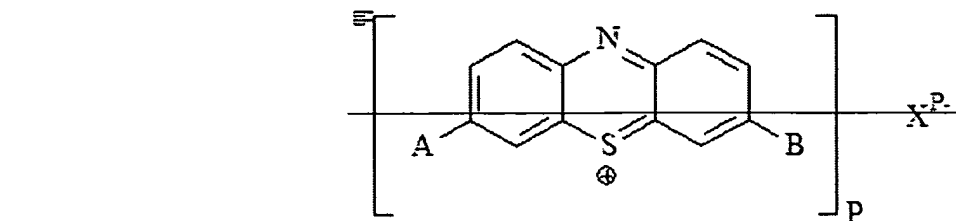
to said surface or fluid; and

exposing said surface or fluid to which said compound has been applied or contacted to light to activate said compound and thereby kill or deactivate said *Candida albicans*, *E. coli*, *P. aeruginosa*, *S. aureus* or methicillin resistant *S. aureus*.---

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Please replace Claim 84 with the following text:

---Claim 84 (Currently Amended): A method for killing or deactivating any *Candida albicans*, *E. coli*, *P. aeruginosa*, *S. aureus* or methicillin resistant *S. aureus* present in a fluid comprising contacting the fluid with a conjugate or composite formed between:



wherein said compound is selected from the group consisting of:

- [3,7-(tetra-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-n-butylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(tetra-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-hexylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(2-ethylpiperidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(2-methylpyrrolidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3,7-(N,N-tetra- iso-butylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-diethylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-pentylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
- [3-(N,N-di-n-butylamino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-}, and

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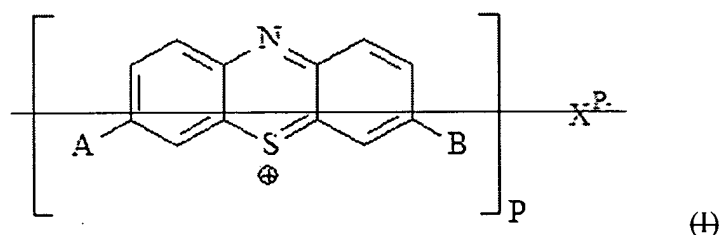
[3-((N-ethyl-N-cyclohexyl) amino)-7((-N-ethyl)-N-cyclohexyl) amino-phenothiazin-5-ium]_P X^{P-},

wherein X^{P-} is a counteranion and P is 1, 2 or 3,

and a polymer and exposing said fluid to which said ~~conjugate~~ or composite has been contacted to light to activate said ~~conjugate~~ or composite and thereby kill or deactivate said *Candida albicans*, *E. coli*, *P. aeruginosa*, *S. aureus* or methicillin resistant *S. aureus*.---

Please replace Claim 100 with the following text:

---Claim 100 (Currently Amended): A method of treating a skin disease selected from the group consisting of psoriasis, acne, vitiligo and eczema comprising administering to a subject in need thereof a therapeutically effective amount of a compound of Formula (I):



~~wherein said compound~~ is selected from the group consisting of:

[3,7-(tetra-n-propylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-n-butylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(tetra-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},

[3-(N,N-di-n-butylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},

[3-(N,N-di-n-hexylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},

[3-(2-ethylpiperidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},

[3-(2-methylpyrrolidino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-},

[3,7-(N,N-tetra- iso-butylamino)-phenothiazin-5-ium]_P X^{P-},

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[3-(N,N-di-n-butylamino)-7-(N,N-di-iso-pentylamino)-phenothiazin-5-ium]_P X^{P-},
[3-(N,N-diethylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
[3-(N,N-di-n-pentylamino)-7-(N,N-di-n-propylamino)-phenothiazin-5-ium]_P X^{P-},
[3-(N,N-di-n-butylamino)-7-(N,N-di-n-pentylamino)-phenothiazin-5-ium]_P X^{P-}, and
[3-((N-ethyl-N-cyclohexyl) amino)-7((-N-ethyl)-N-cyclohexyl) amino-phenothiazin-5-ium]_P X^{P-},

wherein X^{P-} is a counteranion and P is 1, 2 or 3;

and exposing an area of skin of said subject affected by said skin disease to light to render active said compound and

thereby effecting said treatment of said skin disease.---

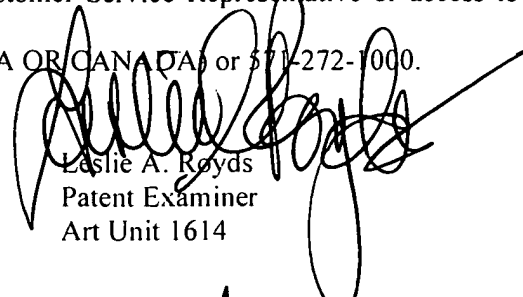
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie A. Royds whose telephone number is (571)-272-6096. The examiner can normally be reached on Monday-Friday (9:00 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin H. Marschel can be reached on (571)-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Leslie A. Royds
Patent Examiner
Art Unit 1614

November 26, 2007



ARDIN H. MARSCHEL
SUPERVISORY PATENT EXAMINER